

1/4 wave plate, the S linearly polarized light is turned to a right circularly polarized light. The projected light beam is reflected at the fundus of the eye 1 under testing. When the reflected light beam is reflected by the fundus, the reflected light beam is turned to a left circularly polarized light. Further, when the reflected light beam passes through the 1/4 wave plate 13, the reflected light beam is turned to a P linearly polarized light, which has direction of polarization deviated by an angle of 90° from a direction of the S linearly polarized light.

The P linearly polarized light is guided toward the polarization beam splitter 8 by the objective lens 11 and the relay lens 9. The polarization beam splitter 8 reflects the S linearly polarized light and transmits the P linearly polarized light. Thus, the reflected light beam transmits the polarization beam splitter 8, and the reflected light beam is formed as a secondary index image on the photoelectric detector 21 by the focusing lens 19 and the image forming lens 20.

The light amount intensity distribution of the secondary index image, which is received by the photoelectric detector 21, reflects the eye's optical characteristic of the eye 1 under testing. By detecting the light receiving condition of the photoelectric detector 21, the eye's optical characteristic can be measured.

Next, not all of the projected light beam projected to the fundus of the eye 1 under testing is necessarily reflected on the fundus of the eye 1 under testing. A part of the light beam enters through the surface into

superficial layer of the fundus and scattering reflection occurs (the so-called bleeding reflection) (hereinafter referred as "scattering reflection"). When this scattering reflection is received together with the reflected light beam at the photoelectric detector 21, the scattering reflection is turned to a noise in the light amount intensity distribution of the secondary index image, and it is not possible to accurately measure the eye's optical characteristic of the ocular optical system.

Polarizing status of the light beam by such scattering reflection is in a random state. For this reason, when the light beam passes through the 1/4 wave plate 13 and is turned to a linearly polarized light, only a limited part of the light beam matches with the P linearly polarized light. Therefore, almost all of the scattering reflection light components are absorbed by the polarization beam splitter 8, and the light beam received by the photoelectric detector 21 is a projected reflection light beam, from which the scattering reflection light components have been substantially removed. When the 1/4 wave plate 13 is used as a component element of the projection optical system 2 and the photodetection optical system 3, it is possible to measure the accurate eye's optical characteristic of the ocular optical system.

Now, description will be given on the measurement of the eye's optical characteristic of the eye under testing referring to Fig. 3 and Fig. 4.

In the measurement of the eye's optical characteristic, the pupil 18 is divided into a number of regions as required.

For each of the regions thus divided, the eye's optical characteristic of the region is measured, and the eye's optical characteristic of the eye under testing is determined according to the regional eye's optical characteristic thus obtained.

(Step01) While the subject person under testing is instructed to gaze at the fixed target 15, and the focusing lens 19 is moved. In association with the movement of the focusing lens 19, the light source 5 and the projection lens 6 are integrally moved. Focusing is performed roughly, and a target measuring position corresponding to the refractive power of the eye under testing is set. This setting can be performed in such a method that the setting is performed based on the result of measurement by an objective refractometer determined in advance. Or, this setting can be performed in such a method that the subject person observes the index image displayed on a monitor based on a signal from the photoelectric detector 21 and the focusing is performed so that rough focusing can be made on the target image.

(Step02) The region to be measured is set by the aperture diaphragm 14. The setting is performed by combining the aperture plates 23, 24, and 25. To set a region of A1 as shown in Fig. 3, the aperture plate 25 is turned to the condition shown in Fig. 2 (C), and the aperture plate 24 is superimposed on the aperture plate 25, and the region of A1 can be set. The reflected light beam reflected by the fundus of the eye 1 under testing passes through a region which is symmetrical to A1 of the aperture